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NARA-CP RG 104 entry 217, box 1

Mint of the United States,

Philadelphia, May 3 1866

Hon. Hugh McCulloch

Secretary of the Treasury

Sir

On the 19th inst. I received a communication from Hon. John A. Kasson, Chairman of the Committe on Coinage, asking for such information as I could furnish in reference to the plans proposed by Dr. J. T. Barclay of Virginia, for diminishing the loss by abrasion, and preventing the counterfeiting of the coins of the United States. I replied to him on the 3d inst. and enclose to you copies of my reply for the information of your Department.

Very respectfully

Jas. Pollock

Director

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NARA-CP RG 104 entry 217, box 1

# Mint of the United States,

Philadelphia, May 3d 1866

Dear Sir

I have your note of the 19th inst. asking for information in regard to "the plans proposed by Dr. J. T. Barclay of Virginia for diminishing the loss by abrasion, and preventing the counterfeiting of the coins of the United States."

There has been a large amount of conference and correspondence on the subject, extending over many years, but all previous to my connection with the Mint. I presume it will be satisfactory, if I state in a condensed form, what facts I can gather from our files of letters, and from inquiry among the operative officers of the Mint.

Dr. Barclay has been several times at the Mint, in the prosecution of this business. The first time was in March 1836, under a resolution of the Senate; when he presented to the Director (Dr. R. M. Patterson) certain queries in writing, which were replied to in the same way.

A copy of those inquiries (marked **A**) is subjoined, and I must ask you now to turn to it, and also to read the copy **B**, which is a letter from the Director, to the Secretary of the Treasury (Hon. Levi Woodbury) which gives a short version of his replies to Dr. Barclay

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and also introduces another matter, material to the issue.

The Secretary having declined to authorize any payment of money, on account of these experiments, on the ground that the resolution and appropriation of the Senate were rejected by the House, the matter came to a speedy termination.

Twenty years later (May 1856) Dr. Barclay was again at the Mint, with a resolution of the Senate, "That the Secretary of the Treasury be requested to instruct the Director of the Mint to institute a series of experiments according to the advice and with the assistance of Dr. James T. Barclay" in reference to the same points which were made in 1836. This not being a joint resolution, as that of 1836 was intended to be, there was no appropriation of money to defray expenses. The Director of the Mint (J. R. Snowden Esq.) wrote to the Secretary of the Treasury (Hon. James Guthrie) for instructions, and received a reply that "it is not reasonable that the experiments should be a charge on the contingent fund of the Mint; nor is it intended that any portion of the bullion fund shall be removed from the legal and proper custody, to be used in such experiments."

An unpleasant correspondence between the

Director and Dr. Barclay, resulted from this visit, and nothing was done.

The next winter (February 1857) a joint resolution of Congress was passed, authorizing "the Secretary of the Treasury to cause inquiries to be made by two competent commissioners, into processes and means claimed to have been discovered by J. T. Barclay, for preventing alteration, counterfeiting, and deterioration of the coins of the United States," and appropriating $2500 to that object. In July following, two gentlemen, professors in the University of Pennsylvania, were appointed on that Commission. And in June 1860, an additional appropriation of $5000 was granted.

After about three years from the appointment, the Report of the Commission was made to the Secretary of the Treasury, and was read and ordered to be printed, in Senate, June 14th 1860.

The Commissioners, with Dr. Barclay (as is stated in that report) entered upon the investigation in the summer of 1857. An apartment in the Mint was placed at their service by the Director, as a workshop for Dr. Barclay, and was so made use of until May 1858. The gold and silver planchets required in the experiments, were also

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NARA-CP RG 104 entry 217, box 1

supplied by the Director, and the Engraver of dies, the Chief Coiner, and a number of the workmen, gave the aid that was asked for. The Commission also engaged the services of competent artists, a machinist, and die-sinker, not attached to the Mint.

Having stated these facts, it is time to come to the merits of the case. First; I observe, in a long letter of explanations from the Director of the Mint to the Secretary of the Treasury, dated January 7th 1860, this passage. "I was never able to obtain from Mr. Barclay, either verbally or in writing, (and our correspondence was quite full, copies of which I furnished to the Department) any clear view of the nature and character of his improvements, or how he proposed to carry them into effect." Again in the report of the Commission, April 1860, it is said, "We do not contemplate entering into any account or explanation of the modes by which he designs to carry into effect the details of his system"; and again, "a promising beginning only, towards the development" &c

In accordance with what is above stated, I learn from officers of the Mint, that although they had conversations with him, and saw some specimen planchets, which were apparently made in a lathe, they could not see that he had any definite plans, or had made any discovery, but

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that he expected by experimenting at the Mint, and by inquiries there &c. to strike upon something that would answer the various objects in view.

Some of the specimens were of wavy or corrugated surfaces, others had deep channels on the face or the edge: but all were impracticable for a coining press, and so unsightly, that they were sure to be rejected by either a refined or popular taste.

His idea of mixing the gold with iron, to render it less liable to wear, was dispelled by learning that gold and iron are mutually repellant, and do not make a true alloy. In the Engraver's room, one thing was tried, and then another. But it does not appear, that there have been any dies made, or coins struck, in or out of the Mint, to show that Dr. Barclay has arrived at any conclusion. Nor is there the least likelihood, that a plan of coinage which is to prevent all mal-practices, and greatly to mitigate abrasion, will ever be matured; any more than discovering a complete check to to the counterfeiting or altering of bank notes.

At all events, the proper persons to engage

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on such inquiries, are those whose business makes them familiar with the subject. And it is not easy to see the occasion for appropriating "one hundred thousand dollars" for further experimenting, and for remuneration, as was recommended by the Hon. Secretary Cobb, in his Annual Report for 1860, when all needed experiments can be carried on at the Mint, by Mint officers, (as they often have been) without the outlay of a single dollar. Your Committee has only to signify its wishes to prove this.

Finally, in regard to the real magnitude of the evil to be abated; let me refer you, first, to the paper C, on the subject of Abrasion of Coins. You will there see, that the exaggeration has been about ten fold. In the next place, in regard to the extent to which our coins are counterfeited or corrupted, which the Commission "have been informed, on good authority, is not less than one per cent of the silver, and as much as two per cent of the gold coin in circulation", I have to say, that I have recently caused inquiry to be made of the Specie-brokers, in Philadelphia and New York, as to the proportion of spurious and suspicious coin that is offered at their counters. Taking the worst view, it appears,

that in specie-paying times, when bad or doubtful pieces were more abundant than now, the proportion of such, among gold coins, was not greater than one dollar to one thousand. At present it is sometimes one in 2000, sometimes one in 5000 But then the coin in the large depositories, is almost entirely genuine. Various tellers report, that they count lots in which there is hardly one bad coin in a million. All this is very different from two per cent.

I have not inquired about silver; most of the imitations are type-metal casts, which easily betray themselves.

I have no personal knowledge of Dr. Barclay or his plans, but state the facts as they have officially come to my knowledge.

I enclose copies of letters from James B. Longacre Esq. Engraver, and Prof Jas. C. Booth Weller and Refiner on the subject of Dr. Barclay plan.

Very respectfully

J. A. Elliott
Director

Hon John A Kasson
Chairman Comt. on
Coinage

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NARA-CP RG 104 entry 217, box 1

A

Philadelphia March 22d 1836

Sir

Will you be kind enough to reply to the following interrogatories?

1st Would not the reduction of coin by the method I suggest, be the most lucrative pursuit known?

2nd Could not this reduction be counteracted to a considerable degree by contracting the extent of surface exposed by the coin, and by having a portion of the coin very finely executed and so situated as to be defended from friction?

3rd Would not the detrition of specie coined on this principle be less than that in which the surface is more extended, and is there any valid objection to its adoption?

4th Would not an increase of alloy also tend to prevent the reduction of coin, and might not the composition as well as the proportion of alloy be advantageously altered provided that the malleability and permanence of the metals are not materially impaired?

5th Is not the diversity of color in the gold coinage attributable to the indefiniteness of the act establishing its alloy, and is it not advisable to have the exact proportions of the ingredients of the alloy fixed by law?

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NARA-CP RG 104 entry 217, box 1

6th Does not Copper coin admit of very profitable reduction, and is not legislation necessary for its protection?

7th Would not Platinum from its malleability, ductility, and tenacity, its great density, low equivalent number and chemical habitudes form an excellent material for coin?

An early answer is respectfully requested by

Yours &c.

(sgd) James T. Barclay

To

Dr. R. M. Patterson

Director of the Mint

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NARA-CP RG 104 entry 217, box 1

B

Mint of the United States
Philadelphia March 19th 1854

Sir

When I was in Washington I promised Mr Wright and Mr. Cambreleng that if Dr. Barclay chose to come to the Mint, I would offer him every facility in trying his proposed experiments on our Coins. He has come accordingly, and explained to me his projects. There is a well known process called Sweating, by which a portion of the gold or silver may be dissolved without very greatly defacing the coin, and thus frauds have often been committed in Europe, but not, so far as I know, in this country. Weighing would be, of course, an infallible test of this change; but Dr Barclay proposes some others. The first is, that in certain parts of the coin, so deep as not to be subject to attrition by ordinary use, fine lines should be struck. When the coin is introduced into the acid, these would be acted upon and blurred, and their appearance might lead to the detection of the fraud. Any individual must be little acquainted with the ingenious resources of rogues who can suppose that this scheme would not be evaded; and one method of doing

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so suggests itself at once: it is simply to cover the parts that contain these lines by wax or varnish before the coin is subjected to the acid.— Another scheme of Dr. Barclay consists in making the coin thicker than at present in proportion to its diameter; so that the surface being diminished, it must be corroded more deeply to take away the same quantity of metal, and the change in the thickness would be more apparent. I am sure, Sir, you must see, that, confining ourselves to the limits prescribed by practicability of execution, and agreeable proportion of form, this device would be quite ineffectual. — We contemplate some reduction in the diameters of our coins, but not with this object. Indeed, if the coins were made very thick, facility would be given to another mode of fraud sometimes resorted to,— which is to drill holes through the piece edgewise, and then plug them up with lead or some other base metal. Another device of Dr. Barclay is to make the coins very base, so that, as the copper is most readily attacked by the acid, the process would change more completely the appearance of the coin. Against this scheme the objections are so obvious, that I forbear to trouble you with them in writing. Lastly Dr. Barclay proposes the introduction of coins of Platina, as has

been done in Russia. But Platina can be dissolved in Nitro-Muriatic Acid as well as gold;- and, without entering upon the question of this currency, (which would demand a change of the Constitution) it may be remarked that the scheme has no novelty, and requires no experiments on our part.

I have offered to have dies made according to Dr. Barclay's wishes, and to try with him the proper experiments upon their efficiency. But he has surprised me by asking another aid from the Mint which I had not contemplated among the facilities which I promised, and that is a pecuniary remuneration for his travelling expenses &c. I know that I am entrusted with some discretion in the employment of our contingent fund, under which experiments deemed important to the coinage might be made, and paid for. It appears to me, however, that this expectation of Dr. Barclay of remuneration for his expenses, cannot be complied with under the general powers. But as he says that Mr. Cambreleng had given him reason to think otherwise, and had told him this was the ground on which the House refused to concur with the

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NARA-CP RG 104 entry 217, box 1

resolution of the Senate on the subject, I take the liberty of asking for your opinion in the case. Can I legally make use of our contingent appropriation to defray Dr. Barclay's personal expenses,— and if I can, ought I to do so?

Most respectfully
Your obedient servant
(sgd) R. M. Patterson
Director

To
Hon. Levi Woodbury
Secretary of the Treasury

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NARA-CP RG 104 entry 217, box 1

C

# Extract from the Annual Report of the Director of the United States Mint (J Pollock) for the fiscal year ending June 30th 1862

## Abrasion of Coins

"Very remarkable statements have from time to time been published as to loss by abrasion or wear of coins: making the amount so great as almost to cast discredit upon metallic currency. Thus we are told by one writer, that the annual loss in a country where both gold and silver circulated, is one part in 420; by another, one in 300; by a third, one in 200; and one gentleman "of great accuracy, and acuteness," (cited by Jacobs,) says that the loss of coined silver is full one per cent. per annum. A more recent and alarming estimate from British sources, would lead to the expectation that silver pieces of the size of their shilling or our quarter dollar, would in less than ten years, be worn so much as to be no longer passable. Every one knows the value of such statements on this side of the water.

We have recently had occasion to make a thorough re-examination of this important subject, and have ascertained what is the average annual loss on each

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size of gold coin, and on the silver promiscuously. Not to enter into details here, it may be stated that the silver coin averages a loss of one part in 630; the half eagle, one in 3,550; the double eagle, one in 9,000; and that by a cautious estimate as to the proportions of various sizes of coin actually among us, the average annual loss by abrasion does not exceed one part in 2,400; that is, in times when specie is current at par with bank paper, and not lying idle. Let it be observed that all experiments hitherto made in regard to abrasion seem to have been based upon pieces not higher in value than the Sovereign or Half Eagle. This has rendered expedient a new examination, because the great preponderance of our specie is in large pieces, which being less exposed by circulation, must be judged by a law of their own. While one double eagle is lying quiet, five or ten smaller pieces are passing from hand to hand.

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NARA-CP RG 104 entry 217, box 1

Copy of letter from Prof. Booth Melter and Refiner

United States Mint.

Philada Apl. 23d 1866.

Hon James Pollock,
Director U. S. Mint.

Dear Sir.

In reply to your request that I should state my impressions and views in regard to the schemes of Dr J. T. Barclay, I beg to state, that, according to my recollection, Dr Barclay proposed two classes of improvements, 1st in the Composition + 2d in mechanical forms. 1. In alloys or Composition, he proposed nothing very definite, but rather the general principle of getting a new alloy, which should resist abrasion more than those which had been heretofore used in coinage. I suggested that the first thing to be done was to invent such an alloy, that inasmuch as men have experimented for many hundred years to improve alloys for coinage without success, the attempt now would involve endless experimenting, with not much prospect of success. The alloys alluded to are only for gold + silver coinage. The only alloy that I recollect his alluding to was one of gold + iron, without stating and proportion. To this I objected the great difficulty of making such alloys of definite composition,

and again, when made, the still greater difficulty of maintaining such alloy of uniform standard, by reason of the extreme oxidability of iron, in the fire.

2. Mechanical form or contrivance to prevent the interior of a gold coin being extracted + replaced by base metal.

As this branch of his inventions or propositions was foreign to my chemical pursuit, I hazarded no opinion further than that his invention of a thin waved ring within the periphery of a coin appeared to me, ingenious + capable of preventing plugging coin. Whether his idea on this point could be carried out practically, or whether it was the best of the kind, being questions foreign to my office and my chemical pursuits, I was unable to determine.

I recollect that Dr R. E. Rodgers + Prof. Vethake were appointed a Commission to investigate his processes or inventions, but I never saw their Report, nor heard what conclusions they reached.

These are all my recollections of the schemes of Dr, J. J. Barclay. I gave up my Laboratory in the Mint to the use of Dr Barclay + Dr Rogers, and except supplying them with anything they asked for, I sedulously avoided any interfere or even questioning, in relation to their experiments, in order to disprove what I understood Dr Barclay had alleged, that I was hostile to him or his processes.

Very Respy Yours. Dan'l E. Bo[illegible]

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NARA CP RG 104 entry 247, box 4 area

Copy of letter from

# Mint of the United States.

Philadelphia May 1st 1866.

Dear Sir.

About ten years ago, I was called on by the director of the Mint, for my opinion respecting the value and practicability of certain changes in the manufacture and character of the coinage proposed by Dr J. J. Barclay. After a careful examination of the proposed changes I was unable to perceive their availability or advantage over the forms and processes now in use - while to the artistic character of our coins, they would have been detrimental. The opinion then expressed in accordance with these impressions, I have since had no reason to reverse.

Mr Barclay proposed to have the coins indented with a circular groove, in order to prevent a certain mode of adulteration by drilling: a mode of debasing the coin of such rare occurrence, that I could not remember having met with any such pieces in circulation - his plan did not embrace the prevention of any other debasing process: while the change it contemplated was not accompanied with any mode of introducing it in the manufacture of the coinage.

The following, amongst other reasons, appeared to render its introduction not desirable.

I. The evil it proposed to remedy, was not of sufficient mag-

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NARA-CP RG 104 entry 217, box 1

-nitude to warrant the alteration it would have involved in the machinery of the Mint.

II It would, in reality have given no security against the very form of adulteration it was intended to prevent; the inevitable clogging of the groove by extraneous matter, consequent upon ordinary circulation, would have been used to conceal the abrasion of the coin beneath it, and have served rather to facilitate the efforts of dishonest ingenuity in tampering with the pieces in question.

III It would have required the destruction of our present devices, and a change in the laws regulating them.

IV It would have interfered prejudicially with the artistic character of the coinage - the groove, when made would have been a constant receptacle for dirt, - and if filled with some substances, such as varnish or printer's ink, which dry hard and adhere tenaciously - the coin could not be freed from the adhesion, without scouring or some similar process equally damaging or troublesome.

V If the groove was made by a projection from the face of the die it could not be delivered from the coining presses now in use without such alteration in the machinery as I have never seen, and which it is not my province to devise. If the groove is to be produced in any other way, it must be made either before

or after the piece is struck; - if made before, the groove would be filled or obliterated by the coining process; and if after, it would damage the face of the coin.

VI If the groove is to be made by a projection from the dies, the dies could not be finished by the processes hitherto in use, and no other or improved mode of making them has been proposed by Dr Barclay.

Every die-sinker, will percieve at once, that this difficulty is insurmountable, if the die is to be finished by facing, in the manner universally employed in preparing it for the striking press.

Respectfully Yours &c,
James B. Longacre
Engraver.

Hon Jas. Pollock,
Director

RG104 E-217 Box 1

Mint of the United States
Philadelphia

May 3, 1866

Hon. Hugh McCulloch,
Secretary of the Treasury

Dear Sir:

On the 19th inst., I received a communication from the Hon. John A. Kasson, Chairman of the Committee on Coinage, asking for such information as I could furnish in reference to the plans proposed by Dr. J. T. Barclay of Virginia, for diminishing the loss by abrasion, and preventing the counterfeiting of the coins of the United States. I replied to hi on the 3rd inst., and enclose to you copies of my reply for the information of your Department.

Very respectfully,
/s/ James Pollock, Director

RG104 E-217 Box 1

Mint of the United States
Philadelphia

May 3, 1866

Hon. John A. Kasson, Chairman
Committee on Coinage, etc.
Washington, D.C.

Dear Sir:

I have your note of the 19th inst., asking for information in regard to "the plans proposed by Dr. J. T. Barclay of Virginia for diminishing the loss by abrasion, and preventing the counterfeiting of the coins of the United States, etc."

There has been a large amount of conference and correspondence on the subject, extending over many years, but all previous to my connection with the Mint. I presume it will be satisfactory if I state in a condensed form what parts I can gather for our files of letters, and from inquiring among the operative officers of the Mint.

Dr. Barclay has been several time at the Mint, in the prosecution of this business. The first time was in March 1836, under a resolution of the Senate, when he presented to the Director (Dr. Robert M. Patterson) certain queries in writing, which were replied to in the same way. A copy of those inquiries (marked A) is subjoined, and I must ask you now to turn to it, and also to read the copy B, which is a letter from the Director to the Secretary of the Treasury (Hon. Levi Woodbury) which gives a short version of his replies to Dr. Barclay, and also introduces another matter, material to the issue.

The Secretary, having declined to authorize any payment of money on account of these experiments, on the ground that the resolution and appropriation of the Senate were rejected by the House, the matter came to a speedy termination.

Twenty years later (May 1856) Dr. Barclay was again at the mint with a resolution of the Senate, "That the Secretary of the Treasury be requested to instruct the Director of the Mint to institute a series of experiments according to the advice and with the assistance of Dr. James T, Barclay," in reference to the same points which were made in 1836. This not being a joint resolution, as that of 1836 was intended to be, there was no appropriation of money to defray expenses. The Director of the Mint (J. R. Snowden, Esq.) wrote to the Secretary of the Treasury (Hon. James Guthrie) for instructions, and received a replay thus: "it is not reasonable that the experiments should be a charge on the contingent fund of the Mint; nor is it intended that any portion of the bullion fund shall be removed from the legal and proper custody, to be used in such experiments."

An unpleasant correspondence between the Director and Dr. Barclay resulted from this view and nothing was done.

The next winter (February 1857) a joint resolution of Congress was passed, authorizing "the Secretary of the Treasury to cause inquiries to be made by two competent commissioners, into purposes and means claimed to have been discovered by J. T. Barclay, for preventing abrasion, counterfeiting, and deterioration of the coins of the United States," and appropriating $2,500 to that object. In July following, two gentlemen, professors in the University of Pennsylvania, were appointed on that Commission. And in June 1860, and additional appropriation of $5,000 was granted.

After about three years from the appointment the Report of the Commission was made to the Secretary of the Treasury, and was read and ordered to be printed, in Senate, June 14th 1860.

The Commissioners, with Dr. Barclay (as is stated in that report) entered upon investigation in the summer of 1857. An apartment in the Mint was placed at their service by the Director, as a workshop for Dr. Barclay, and was so made use of until May 1858. The gold and silver planchets required in the experiments, were also supplied by the Director; and the Engraver of dies, the Chief Coiner, and a number of the workmen, gave the aid that was asked for. The Commission also engaged the services of competent artists, a machinist, and die-sinker, not attached to the Mint.

Having stated these facts, it is time to come to the merits of the case. First: I observe, in a long letter of explanation from the Director of the Mint to the Secretary of the Treasury , dated January 7, 1860, this passage. "I was never able to obtain from Dr. Barclay, either verbally or in writing (and our correspondence was quite full, copies of which I furnished to the Department) any clear view of the nature and character of his improvements, or how he proposed to carry them into effect." Again in the report of the Commission, April 1860, it is said, "We do not contemplate entering into any account or explanation of the modes by which he designs to carry into effect the details of his system;" and again, "a promising beginning only, towards the development," etc.

In accordance with what is above stated, I learn from Officers of the Mint, that although they had conversations with him, and saw some specimen planchets, which were apparently made in a lathe, they could not see that he had any definite plans, or had made any discoveries, but that he expected by experimenting at the Mint, and by inquiries there, etc., to strike upon something that would answer the various objects in view.

Some of the specimens were wavy or corrugated surfaces, others had deep channels on the face or the edge, but all were impracticable for a coining press, and so unsightly, that they were sure to be rejected by either a refined or popular taste.

His idea of mixing the gold with iron, to render it less liable to wear, was dispelled by learning that gold and iron are mutually repellant, and do not make a true alloy. In the engraver's room, one thing was tried, and then another. But it does not appear, that there have been any dies made, or coins struck, in or out of the Mint, to show that Dr. Barclay has arrived at any conclusion. Nor is there the least likelihood, that a plan of coinage which is to prevent all malpractices, and greatly to mitigate abrasion, will ever be matured; any more than discovering a complete check to the counterfeiting or altering of bank notes.

At all events, the proper persons to engage in such inquiries are those whose business makes them familiar with the subject. And it is not easy to see the occasion for appropriating "one hundred thousand dollars" for further experimenting, and for remuneration, as was recommended by the Hon. Secretary Cobb, in his Annual report for 1860, when all needed experiments can be carried on at the Mint, by Mint Officers (as they often have been), without the outlay of a single dollar. Your Committee has only to signify its wishes to prove this.

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Taking the worst view, it appears that in specie-paying times, when bad or doubtful pieces were more abundant than now, the proportion of such, among gold coins, was not greater than one dollar to one thousand. At present it is sometimes one in 2,000, sometimes one in 5,000. But then the coin in large depositories, is almost entirely genuine. Various tellers report, that they count lots in which there is hardly on bad coin in a million. All this is very different from two percent.

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I have no personal knowledge of Dr. Barclay or his plans, but state that the facts as they have officially come to my knowledge.

I enclose copies of letters from James B. Longacre, Esq., engraver, and Prof. James C. Booth, Melter and Refiner on the subject of Dr. Barclay's plan.

Very respectfully,

/s/ James Pollock, Director

RG104 E-217 Box 1

[ Exhibit ] A

Philadelphia

March 22, 1836

Dr. R. M. Patterson,
Director of the Mint

Will you be kind enough to reply to the following interrogatories?

1st Would not the reduction of coin by the method I suggest, but the most lucrative pursuit known?
2nd Could not this reduction be counteracted to a considerable degree by contracting the extent of surface exposed by the coin, and by having a portion of the coins very finely executed and so situated as top be defended from friction?
3rd Would not the detrition of specie coined on this principle be less than that in which the surface is more extended, and is there any valid objection to its adoption?
4th Would not an increase of alloy also tend to prevent the reduction of coins, and might not the composition as well as the proportion of alloy be advantageously altered provided that the malleability and permanence of the metals are not materially impaired?
5th Is it not the diversity of color in the gold coinage attributable to the indefiniteness of the Act establishing its alloy, and is it not advisable to have the exact proportions of the ingredients of the alloy fixed by law?
6th Does not copper coin admit of very profitable reduction, and is not legislation necessary for its protection?
7th Would not Platinum form its inalterability, malleability, ductility, and tenacity, its great density, low equivalent number and chemical habitudes form an excellent material for coin?

An early answer is respectfully requested by

Yours, etc.
/s/ James T. Barclay

RG104 E-217 Box 1

[ Exhibit ] B

Mint of the United States
Philadelphia

March 19, 1836

Hon. Levi Woodbury,
Secretary of the Treasury

When I was in Washington I promised Mr. Wright and Mr. [Churchill Caldom] Cambreleng, that if Dr. Barclay chose to come to the Mint, I would offer him every facility in trying his proposed experiments on our coins. He has come accordingly and explained to me his projects.

There is a well-known process called Sweating, by which a portion of the gold or silver may be dissolved without very greatly defacing the coins, and thus frauds have often been committed in Europe, but not, so far as I know, in this country. Weighing would be, of course, an infallible test of this change; but Dr. Barclay proposes some others.

The first is, that in certain parts of the coin, so deep as not to be subject to attrition by ordinary use, fine lines should be struck. When the coin is introduced into the acid, these would be acted upon and blurred, and their appearance might lead to the detection of the fraud. Any individual must be little acquainted with the ingenious resources of roguery, who can suppose that this scheme would not be evaded; and one method of doing so suggests itself at once: it is simply to cover the parts that contain these lines by wax or varnish before the coin is subjected to the acid.

Another scheme of Dr. Barclay consists in making the coin thicker than at present in proportion to its diameter, so that the surface being diminished, it must be corroded more deeply to take away the same quantity of metal, and the change in the thickness would be more apparent. I am sure, Sir, you must see, that, confining ourselves to the limits prescribed by practicability of execution and agreeable proportion of form, this device would be quite ineffectual. We contemplate some reduction in the diameters of our coins, but not with this object. Indeed, if the coins were made very thick, facility would be given to another mode of fraud sometimes resorted to – which is to drill holes through the piece edgewise, and then plug the up with lead or some other base metal.

Another device of Dr. Barclay is to make the coins very base, so that, as the copper is most readily attacked by the acid, the process would change more completely the appearance of the coins. Against this scheme the objections are so obvious, that I forebear to trouble with them in writing.

Lastly, Dr. Barclay proposes the introduction of coins of Platine, as has been done in Russia. But Platine can be dissolved in Nitro-Muriatic Acid as well as gold, and, without entering upon the question of this currency (which would demand a change of the Constitution), it may be remarked that the scheme has no novelty, and required no experiments on our part.

I have offered to have dies made according to Dr. Barclay's wishes, and to try with him to proper experiments upon their efficiency. But he has surprised me by asking another aid from

the Mint which I had not contemplated among the facilities which I promised, and that is a pecuniary remuneration for his traveling expenses, etc. I know that I am entrusted with some discretion in the employment of our contingent fund, under which experiments deemed important to the coinage might be made, and paid for.

It appears to me, however, that this expectation of Dr. Barclay of remuneration for his expenses cannot be complied with under the general powers. But as he says that Mr. Cambreleng had given him reason to think otherwise, and had told him this was the ground on which the House refused to concur with the resolution of the Senate on the subject, I take the liberty of asking for your opinion in the case. Can I legally make use of our contingent appropriation to defray Dr. Barclay's personal expenses, and if I can, ought I to do so?

Most respectfully,
Your obedient servant
/s/ R. M. Patterson, Director

RG104 E-217 Box 1

[ Exhibit ] C

Extract from the annual Report of the Director of the United States Mint (J. Pollock) for the fiscal year ending June 30, 1862.

Abrasion of Coins

"Very remarkable statements have from time to time been published as to loss by abrasion or wear of coins, making the amount so great as almost to cast discredit upon metallic currency. Thus we are told by one writer that the annual loss, in a country where both gold and silver circulate, is one part in 420; by another, one in 300; by a third, one in 200; and one " gentleman of great accuracy and acuteness" (cited by Jacobs) says that the loss on coined silver is full one per cent, per annum. A more recent and alarming estimate, from British sources, would lead to the expectation that silver pieces of the size of their shilling, or our quarter dollar, would in less than ten years be worn so much as to be no longer passable. Everyone knows the value of such statements on this side of the water.

"We have recently had occasion to make a thorough re-examination of this important subject, and have ascertained what is the average annual loss on each size of gold coin, and on the silver promiscuously. Not to enter into details here, it may be stated that the silver coin averages a loss of one part in 630 the half eagle one in 3,550; the double eagle one in 9,000; and that, by a cautious estimate as to the proportions of the various sizes of coin actually among us, the average annual loss by abrasion does not exceed one part in 2,400; that is, in times when specie is current at par with bank paper, and not lying idle.

"Let it be observed that all experiments hitherto made, in regard to abrasion, seem to have been based upon pieces not higher in value than the sovereign or half eagle. This has rendered expedient a now examination, because the great preponderance of our specie is in large pieces, which, being less exposed by circulation, must be judged by a law of their own. While one double eagle is lying quiet, live or ten smaller pieces are passing from hand to hand."

[End extract from Annual Report 1862.]

RG104 E-217 Box 1

Copy of a letter from Prof Booth, Melter and Refiner [at the Philadelphia Mint].

United States Mint
Philadelphia

April 23, 1866

Hon. James Pollock, Director
U. S Mint

Dear Sir,

In reply to your request that I should state my impressions and views in regard to the schemes of Dr. J. T. Barclay, I beg to state, that, according to my recollection, Dr. Barclay proposed two classes of improvements: 1st in the composition and 2nd in mechanical forms.

1. In alloys or composition, he proposed nothing very definite, but rather the general principle of getting a new alloy, which should resist abrasion more than those which had been heretofore used in coinage. I suggested that the first thing to be done was to invent such an alloy, that inasmuch as men have experiments for many hundreds of years to improve alloys for coinage without success, the attempt now would involve endless experimenting, with not much prospect of success. The alloys alluded to are only for gold and silver coinage. The only alloy that I recollect his alluding to was one of gold and iron, without stating and [sic: any] proportion. To this I objected the great difficulty of making such alloys of definite composition and again, when made, the still greater difficulty of maintaining such alloy of uniform standard, by reason of the extreme oxidability [sic] of iron, in the fire.
2. Mechanical form of contrivance to prevent the interior of a gold coin being extracted and replaced by base metal. As this branch of his inventions or proposition was foreign to my chemical pursuit, I hazarded no opinion further than that his invention of a thin waved ring within the periphery of a coin appeared to me, ingenious and capable of preventing plugging coins. Whether his idea on the point could be carried out practically, or whether it was the best of the kind, being questions foreign to mu office and my chemical pursuits, I was unable to determine.

I recollect that Dr. R. E. Rodgers and Prof Vethake were appointed a Commission to investigate his processes or inventions, but I never saw their report, nor heard what, conclusions they reached.

These are all my recollections of the scheme of Dr. J. T. Barclay. I gave up my laboratory in the Mint to the use of Dr. Barclay and Dr. Rodgers, and except supplying then with anything they asked for, I sedulously avoided any interference or even questioning, in relation to their experiments, in order to disprove what I understood Dr. Barclay had alleged, that I was hostile to him or his processes.

Very respectfully yours,
/s/ James C. Booth

RG104 E-217 Box 1

Copy of a letter from Mr. James B. Longacre, Engraver [to Hon. James Pollock, Director].

Mint of the United States
Philadelphia

May 1, 1866

Hon. James Pollock,
Director of the Mint

Dear Sir,

About ten years ago, I was called on by the Director of the Mint, for my opinion respecting the value and practicability of certain changes in the manufacture and character of the coinage proposed by Dr. J.T. Barclay. After a careful examination of the proposed changes I was unable to perceive their availability or advantage over the forms and processes now in use – while to the artistic character of our coins, they would have been detrimental. The opinion then expressed in accordance with these impressions, I have since had no reason to reverse.

Dr. Barclay proposed to have the coin indented with a circular groove, in order to prevent a certain mode of adulteration by drilling: a mode of debasing the coin of such rare occurrence, that I could not remembers having met with any such pieces in circulation. His plan did not embrace the prevention of any other debasing process; while the change it contemplated was not accompanied with any mode of introducing it in the manufacture of the coinage.

The following, amongst other reasons, appeared to render its introduction not desirable.

I. The evil it proposed to remedy, was not of sufficient magnitude to warrant the alteration t would have involved in the machinery of the Mint.

II. It would, in reality have given no security against the very form of adulteration it was intended to prevent: the inevitable clogging of the groove by extraneous matter, consequent upon ordinary circulation, would have been used to conceal the abrasion of the coin beneath it, and have served rather to facilitate the efforts of dishonest ingenuity in tampering with the pieces in question.

III. It would have required the destruction of our present devices, and a change in the laws regulating them.

IV. It would have interfered prejudicially withy the artistic character of the coinage – the groove, when made would have been a constant receptacle for dirs., and if filled with some substances, such as varnish or printers' ink, which dry hard and adhere tenaciously, the coin could not be freed from the adhesion, without scouring or some similar process equally damaging or troublesome.

V. If the groove was made by a projection from the face of the die it could not be delivered from the coining presses now in use without such alteration in the machinery as I have never seen, and which it is not my provenance to devise. If the groove is to be produced in any other way, it must be made either before or after the piece is struck; if made before, the groove would be filled or obliterated by the coining process, and if after, it would damage the face of the coin.

VI. If the groove is to be made by a projection from the dies, the dies could not be finished by the processes hitherto in use, and no other or improved mode of making them has been proposed by Dr. Barclay. Every die-sinker, will perceive at once, that this difficulty is insurmountable, if the die is to be finished by facing, in the manner universally employed in preparing it for the striking press.

Respectfully yours, etc.
/s/ James B. Longacre, Engraver